

**REMARKS****DETAILED ACTION*****Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper time-wise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Long*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321 (c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. The Examiner has rejected Claims 21-40 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6, 8-10, 12, 13 and 15-19 of U.S. Patent No. 6,662,812 B1. Although the conflicting claims are not identical, they are not patentably distinct from each other because both teach an method of printing solder and cleaning the stencil by wiping and applying vibrational energy (instant claims 1 and 4 and '812 claims 6, 10, 12 and 15). However the terminology is slightly different and there is no disclosure of ultrasonic vibration. Fluid is applied to the paper used in the process and vacuum is applied (instant claims 3-7 and '812 claims 8, 9 and 16-19).

It would have been obvious to one of ordinary skill in the art at the time of the invention that the target is the circuit board and that the printable medium is solder. Ultrasonic vibration is well known and conventional in the art for both cleaning, drying and solder sphere placement.

Applicants have submitted a terminal disclaimer herein as well as all respective \$65 fee (Small entity). Applicants believe the rejection of Claims 21-40 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 6, 8-10, 12, 13 and 15-19 of U.S. Patent No. 6,662,812 B1 has been overcome by a timely submission of a Terminal Disclaimer and respective fees. Applicants earnestly request the Examiner reconsider and withdraw the rejection of Claims 21-40 under the judicially created doctrine of obviousness-type double patenting

as being unpatentable over claims 6, 8-10,12, 13 and 15-19 of U.S. Patent No. 6,662,812 B1.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351 (a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The Examiner has rejected Claims 21-31, 35, 36, 39 and 40 under 35 U.S.C. 102(e) as being anticipated by Nanjyo et al. (USPN 5860361).

Nanjyo teaches an apparatus and method of cleaning a stencil after screen printing by applying fluid and vibration (col 2 lines 1-10, lines 47-60, col 4 lines 45-58 and col 5 line 9 - col 6 line 23).

Nanjyo, et al. teaches drying using nozzles (23 and 24) and heat, both of which are previously known. "as a result of jetting hot air 32 from the drying nozzles 23 and 24, flashing and drying operation is effected on the screen plate..." (Col. 6, lines 10-22),

and in a second embodiment, discharge ports 65 and 66 are provided which discharge hot air 323...." Col. 8 lines 20-23). Alternately, Nanjyo, et al. presents the application of Ultrasonic cleaning and centrifugal force drying as known prior art (Col. 2 Lines 47-60). Centrifugal force drying is a force from a rotational motion, more clearly defined as "the apparent force, as observed from a body that is moving in a curve or rotating, that acts toward the center of the curve or the axis of rotation (American Heritage Dictionary). Nanjyo, et al. utilizes hot air or centrifugal force which is well known and fails to teach the application of vibrational energy for assisting in drying (with emphasis). The step of applying vibrational energy must be applied AFTER the step of cleaning in order to aid in drying the object. The application of vibrational energy breaks up the molecules of moisture, effectively atomizing them and drastically enhancing the drying process.

Independent Claims 21 comprising the limitation of:

**"applying vibrational energy by at least one of mechanically coupling a vibrational energy source and the at least one of electronic assembly, stencil, and tooling related to manufacture of electronic assemblies and transferring the vibrational energy through the air directed towards the at least one of electronic assembly, stencil, and tooling related to manufacture of electronic assemblies to aid in drying the at least one of electronic assemblies and tooling related to manufacture of electronic assemblies by atomizing moisture droplets resident to the at least one of electronic assemblies and tooling related to manufacture of electronic assemblies"**

Independent Claim 26 comprising the limitation of:

“applying vibrational energy by at least one of mechanically coupling a vibrational energy source and the solder stencil and transferring the vibrational energy through the air directed towards the solder stencil to **aid in drying the solder stencil**”.

Independent Claim 35 comprising the limitation of:

“**applying vibrational energy by at least one of through the air, via mechanical contact to the stencil, and to the wiping material, to aid in drying the stencil**”

Claims 22-25 depend directly or indirectly from Independent Claim 21.

Claims 27-31 depend directly or indirectly from Independent Claim 26.

Claims 36, 39, and 40 depend directly or indirectly from Independent Claim 35.

Applicant believes the rejection of Claims 21-31, 35, 36, 39 and 40 under 35 U.S.C. 102(e) as being anticipated by Nanjyo et al. (USPN 5860361) has been overcome by remarks herein. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Claims 21-31, 35, 36, 39 and 40 under 35 U.S.C. 102(e) as being anticipated by Nanjyo et al. (USPN 5860361).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The Examiner has rejected Claims 21-40 under 35 U.S.C. 103(a) as being unpatentable over Asai et al. (USPN 5988060).

Asai teaches an apparatus and method of cleaning a stencil after screen printing (col 16 lines 35-50) by wiping with wet paper (col 28 lines 51-67 and col 41 lines 25-35) and applying ultrasonic vibration through air (col 26 line 58 - col 27 line 10) and the washing fluid. Fluid and vacuum are applied (col 27 lines 11-52 and col 37 lines 8-27). The apparatus comprises mechanisms for aligning areas, placing solder, cleaning the stencil and applying vibrational energy through air or a fluid medium (col 16 lines 35-50 and col 26 line 58 - col 3 line 65{uncertain as to the correct Columns as this was copied from the Office Action}). However there is no disclosure of using vibrational energy to dry the stencil.

It would have been obvious to one of ordinary skill in the art at the time of the invention that vibration or shaking is an obvious variation of drying with air jets.

Each of the three independent claims, 21, 26, and 35 comprise the limitation of using vibrational energy to assist in the drying process. The Examiner comments, there is no disclosure of using vibrational energy to dry the stencil.

Applicants respectfully state and believe that the utilization of vibrational energy to assist in the drying process of electronics products, tooling, IC's, and the like is new and novel, as noted in the allowance of the parent application, as well as 6,119,367 (Previously overcome). Based upon the previous examinations (precedence) and issued patents, it is believed the use of vibrational energy for assisting in the drying process is not well known by those skilled in the art. Even moreso, when applying ultrasonic energy to help drying by atomizing the moisture molecules.

Applicants believe the rejection of Claims 21-40 under 35 U.S.C. 103(a) as being unpatentable over Asai et al. (USPN 5988060) has been overcome by remarks and precedence set by the Patent Office. Applicants earnestly request the Examiner reconsider and withdraw the rejection of Claims 21-40 under 35 U.S.C. 103(a) as being unpatentable over Asai et al. (USPN 5988060).

### **CONCLUSIONS**

Applicants believe the amendments and remarks herein provide a complete response to the Office Action mailed on September 08th, 2005. The Examiner has established a shortened statutory period of three (3) months for response to the Office Action. Applicants have responded to the Office Action on or before November 08th, 2005 with a proper certificate of correspondence. Therefore, the Applicants believe the response is timely and no additional fees are required.

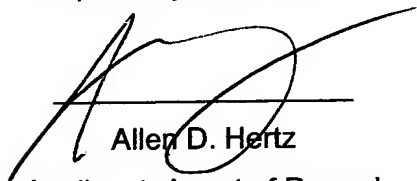
The present application, after entry of this amendment, comprises twenty (20) claims, including three (3) independent claims. Applicant has paid for twenty (20)

claims, including three (3) Independent claims. Applicant, therefore, believes that no additional fee respective to claims is currently due.

Applicants have submitted a Terminal Disclaimer and the respective fee of \$65 (small entity) herein.

If the Examiner believes that there are any informalities that can be corrected by Examiner's amendment, a telephone call to the Applicant (Allen Hertz) at (561) 883-0115 (Office)(Please leave a message) or (561) 716-3915 (Cell phone) is respectfully solicited.

Respectfully submitted,



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